UCAT

YAMAHA

HTR-5150

Natural Sound AV Receiver

Ampli-Tuner audio-vidéo

OWNER'S MANUAL
MODE D'EMPLOI

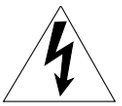
SAFETY INSTRUCTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

- Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.

2 Retain Instructions – The safety and operating instructions should be retained for future reference.

3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.

4 Follow Instructions – All operating and other instructions should be followed.

5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.

6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.

7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.

8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.

10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.

13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.

15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:
- **A.** The power-supply cord or the plug has been damaged; or
- **B.** Objects have fallen, or liquid has been spilled into the unit; or
- **C.** The unit has been exposed to rain; or
- **D.** The unit does not appear to operate normally or exhibits a marked change in performance; or
- **E.** The unit has been dropped, or the cabinet damaged.

16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

17 Power Lines – An outdoor antenna should be located away from power lines.

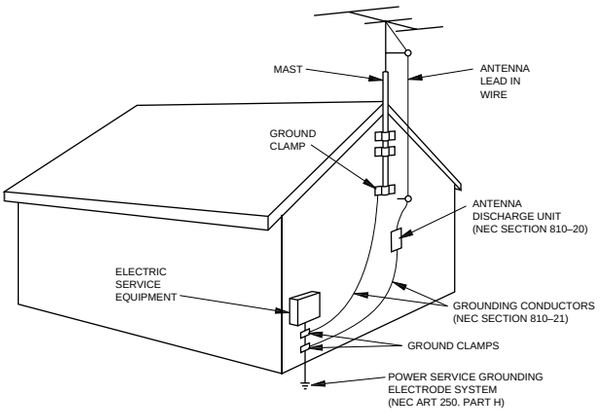
18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.

19 For US customers only:

Outdoor Antenna Grounding – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING



NEC – NATIONAL ELECTRICAL CODE

FCC INFORMATION (for US customers only)

1. **IMPORTANT NOTICE : DO NOT MODIFY THIS UNIT!** This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.
2. **IMPORTANT :** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
3. **NOTE :** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.

   This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6660 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

We Want You Listening For A Lifetime

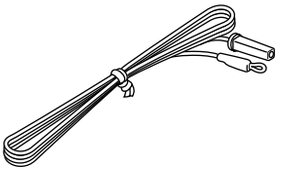
YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing.

Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.

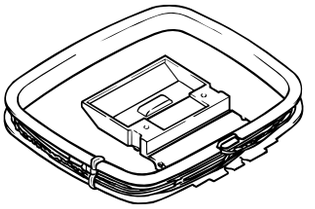
SUPPLIED ACCESSORIES
ACCESSOIRES FOURNIS

- After unpacking, check that the following parts are included.
- Après le déballage, vérifier que les pièces suivantes sont incluses.

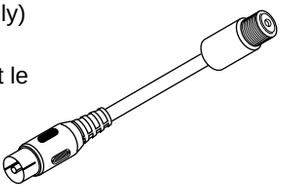
- Indoor FM Antenna
- Antenne FM intérieure



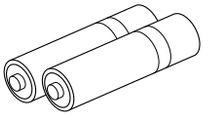
- AM Loop Antenna
- Cadre-antenne AM



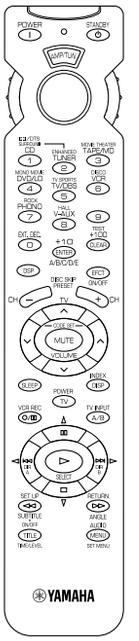
- Antenna adapter
  (U.S.A. and Canada models only)
- Adaptateur d’antenne
  (Modèles pour les États-Unis et le Canada seulement)



- Batteries (size AA, R6, UM-3)
- Piles (taille AA, R6, UM-3)



- Remote control
  Before using the remote control, install the supplied batteries. See page 48 for battery installation.
- Télécommande
  Avant d’utiliser la télécommande, mettre les piles fournies en place. Pour la mise en place des piles, voir page 98.



FEATURES

5-Channel Power Amplification

Mininum RMS Output
(0.04% THD, 20 Hz – 20 kHz)

U.S.A. and Canada models
Main: 70 W + 70 W (8 Ω)
Center: 70 W (8 Ω)
Rear: 70 W + 70 W (8 Ω)

Australia and China models
Main: 65 W + 65 W (8 Ω)
Center: 65 W (8 Ω)
Rear: 65 W + 65 W (8 Ω)

Multi-mode Digital Sound Field Processing

- **Digital Sound Field Processor (DSP)**
- **Dolby Digital Decoder**
- **Dolby Pro Logic Decoder**
- **DTS Decoder**
- **CINEMA DSP: Theater-like Sound Experience by the Combination of YAMAHA DSP Technology and Dolby Digital, Dolby Pro Logic or DTS**
- **Automatic Input Balance Control for Dolby Pro Logic decoding**
- **Test Tone Generator for Easier Speaker Balance Adjustment**
- **Speaker Output Mode Selection**

Sophisticated FM/AM Tuner

- **40-Station Random Access Preset Tuning**
- **Automatic Preset Tuning**
- **Preset Station Shifting Capability (Preset Editing)**
- **6-Channel External Decoder Input for Other Future Formats**
- **Video Signal Input/Output Capability (Including S Video Connections)**
- **SLEEP Timer**
- **Universal Remote Control with Preset Manufacturer Codes**

CONTENTS

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1. To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
2. Install this unit in a cool, dry, clean place – away from windows, heat sources, sources of excessive vibration, dust, moisture and cold. Avoid sources of humming (transformers, motors). To prevent fire or electrical shock, do not expose the unit to rain or water.
3. Never open the cabinet. If something drops into the set, contact your dealer.
4. Do not use force on switches, controls or connection wires. When moving the unit, first disconnect the power plug and the wires connected to other equipment. Never pull the wires themselves.
5. The openings on the cover assure proper ventilation of the unit. If these openings are obstructed, the temperature inside the unit will rise rapidly. Therefore, avoid placing objects against these openings, and install the unit in a well-ventilated area to prevent fire and damage.

   <China model only>
   Be sure to allow a space of at least 20 cm behind, 20 cm on both sides and 30 cm above the top panel of the unit to prevent fire and damage.
6. The voltage used must be the same as that specified on this unit. Using this unit with a higher voltage than specified is dangerous and may result in fire or other accidents. YAMAHA will not be held responsible for any damage resulting from the use of this unit with a voltage other than that specified.
7. Digital signals generated by this unit may interfere with other equipment such as tuners, receivers and TVs. Move this unit farther away from such equipment if interference is observed.
8. Always set the VOLUME control to "∞" before starting the audio source play. Increase the volume gradually to an appropriate level after playback has been started.
9. Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
10. Be sure to read the "TROUBLESHOOTING" section regarding common operating errors before concluding that the unit is faulty.
11. When not planning to use this unit for a long period of time (e.g., a vacation), disconnect the AC power plug from the wall outlet.
12. To prevent lightning damage, disconnect the AC power plug and disconnect the antenna cable when there is an electrical storm.
13. Grounding or polarization – Precautions should be taken so that the grounding or polarization of the unit is not defeated.
14. AC outlet
    Do not connect audio equipment to the AC outlet on the rear panel if that equipment requires more power than the outlet is rated to provide.
15. **Voltage Selector (China model only)**
    The voltage selector on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply.
    Voltages are 110/120/220/240 V AC, 50/60 Hz.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off. This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

FREQUENCY STEP switch
(China model only)
Because the interstation frequency spacing differs in different areas, set the FREQUENCY STEP switch (located at the rear) according to the frequency spacing in your area. Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.

IMPORTANT
Please record the serial number of this unit in the space below.

MODEL:

Serial No.:

The serial number is located on the rear of the unit. Retain this Owner's Manual in a safe place for future reference.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

FOR CANADIAN CUSTOMERS

To prevent electric shock, match wide blade of plug to wide slot and fully insert.

This Class B digital apparatus complies with Canadian ICES-003.

FEATURES OF THE SOUND EFFECTS

Introduction

Welcome to the exciting world of digital home entertainment. This unit is one of the most complete and advanced AV receivers available. Some of the more advanced features may not be familiar to you, but they are easy to use. State-of-the-art technologies such as Dolby Digital and Digital Theater Systems (DTS) may be new to your home, but you have probably experienced the amazing realism they bring to feature films in theaters around the world.

To make the listening experience even more enjoyable, this unit includes a number of exclusive, digitally created listening environments known as digital sound fields. Choosing a sound field program is like transporting yourself to such venues as an outdoor arena, a European church, or a cozy jazz club. Take some time now to read more about these features and enjoy the new experiences this unit brings to your home theater.

Digital Sound Field Processing

What is it that makes live music so good? Today's advanced sound reproduction technology lets you get extremely close to the sound of a live performance, but the chances are that you'll still notice something missing — the acoustic environment of the live concert hall. Extensive research into the exact nature of the sonic reflections that create the ambience of a large hall has made it possible for YAMAHA engineers to bring you this same sound to your listening room, so you'll feel all the sound of a live concert.

Furthermore, our technicians, armed with sophisticated measuring equipment, have even made it possible to capture the acoustics of a variety of actual concert halls, theaters, etc. from around the world, to allow you to accurately re-create any one of these live performance environments, all in your own home.

Dolby Pro Logic

Dolby Surround has been used in movie theaters since the mid-seventies. It has also been available in home entertainment systems since the late eighties and continues to be a popular format for home theater systems. It uses four discrete channels and five speakers to reproduce realistic and dynamic sound effects: two main channels (left and right), a center channel for dialog, and a rear channel for special sound effects. The rear channel reproduces sound within a narrow frequency range.

Most video tapes and laser discs include Dolby Surround encoding, as do many TV and cable broadcasts. The Dolby Pro Logic decoder built into this unit employs a digital signal processing system that stabilizes each channel for even more accurate sound positioning than is available with standard analog processors.

Dolby Digital

Dolby Digital is the next level of the Dolby Surround sound system that was developed for 35 mm-film movies by employing low bit-rate audio coding.
Dolby Digital is a digital surround sound system that provides completely independent multi-channel audio to you. Dolby Digital provides five full-range channels in what is sometimes referred to as a “3/2” configuration: three front channels (left, center and right), and two surround channels. A sixth bass-only effect channel is also provided for output of LFE (low frequency effect), or low bass effects that are independent of other channels. (This is called the “LFE channel”.) This channel is counted as 0.1, thus giving rise to the term 5.1 channels in total.
Compared to Dolby Surround, which is referred to a “3/1” system (left front, center, right front and just one surround channel), Dolby Digital features two surround channels, called stereo or split surrounds, each offering the same full-range fidelity as the three front channels.

By using the built-in Dolby Digital decoder, you can experience the dramatic realism and impact of Dolby Digital theater sound in your home.
The wide dynamic range of sound reproduced by the five full-range channels and precise sound orientation by digital sound processing provides listeners with excitement and realism that have never been experienced before.

Dolby Digital forms 5.1 channels as already mentioned, but it can also form fewer channels, for example 2-channel stereo and monaural. You may be able to find some 2-channel stereo and/or monaural sources encoded with Dolby Digital in the market.
Laser disc and DVD are home audio/video program sources that could benefit from Dolby Digital. In the near future, Dolby Digital will also be applied to DBS, CATV and HDTV. The ongoing release of Dolby Digital theatrical films now underway will provide an immediate source of Dolby Digital encoded video software.

DTS Digital Surround

DTS (Digital Theater Systems) was developed to replace analog soundtracks of movies with six discrete channels of digital soundtracks, and it is now installed in many theaters around the world. The DTS digital playback system changed the way we experienced movies in theaters with six discrete channels of superb digital audio.

DTS technology, through intense research and development has made it possible to deliver similar encode/decode discrete technology to home audio surround-sound entertainment. DTS Digital Surround is an encode/decode system which delivers six channels of master-quality, 20-bit audio; technically, it is 5.1 channels, which means 5 full-range (left, center, right and two surround) channels, plus a subwoofer (LFE) channel (as “0.1”). It is compatible with the 5.1 speaker configurations that are currently available for home theater systems.

The DTS Digital Surround algorithm is designed to encode the six channels of 20-bit audio on to some laser discs, compact discs and DVDs with considerably less data compression.

By using the DTS decoder built into this unit, you can experience the dramatic realism and impact of the DTS-installed theater’s high quality sound in your home.

Laser disc, compact disc and DVD are home audio formats by which DTS can present its high-quality multi-channel audio. (In addition to movies on laser discs, many exciting new multi-channel music recordings will also become available in the form of DTS-encoded compact discs.)

CINEMA DSP: Dolby Surround + DSP / DTS + DSP

The Dolby Surround sound and DTS systems show their full ability in a large movie theater, because movie sounds are originally designed to be reproduced in a large movie theater that uses a multitude of speakers. Trying to create a sound environment similar to that of a movie theater in your home is difficult because of the room size, material inside the walls, the number of speakers, and so on. In other words, your listening room is very different from a movie theater.

However, YAMAHA DSP technology allows you to create nearly the same sound experience as that of a large movie theater in your home by compensating for the lack of presence and dynamics in the listening room with original digital sound fields combined with Dolby Surround or DTS Digital Surround sounds.

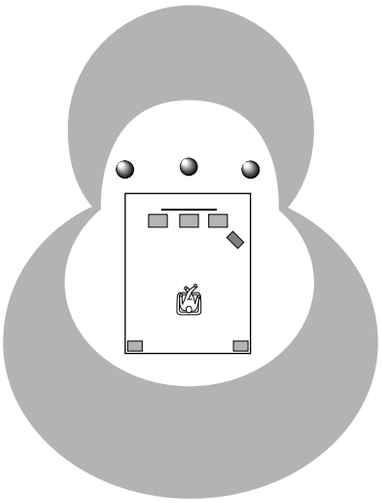
CINEMA DSP

The YAMAHA “CINEMA DSP” logo indicates those programs that are created by the combination of YAMAHA DSP technology and Dolby Surround or DTS.

Dolby Pro Logic + 2 Digital Sound Fields

Digital sound fields are created on the presence side and the rear surround side of the Dolby Pro Logic-decoded sound field, respectively. They create a wide acoustic environment and emphasize the surround effect in the room, letting you feel as much presence as if you were watching a movie in a popular Dolby Stereo theater.

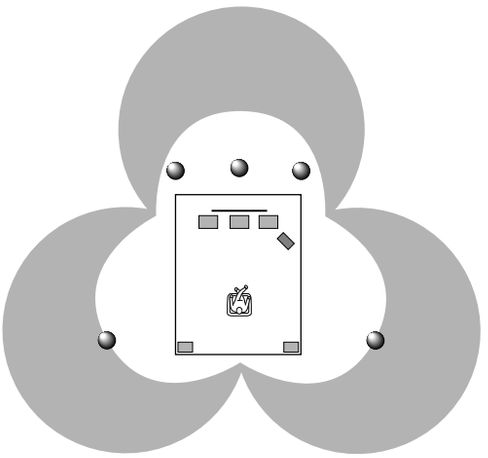
Refer to pages 36 to 37 for the DSP program.



Dolby Digital or DTS + 3 Digital Sound Fields

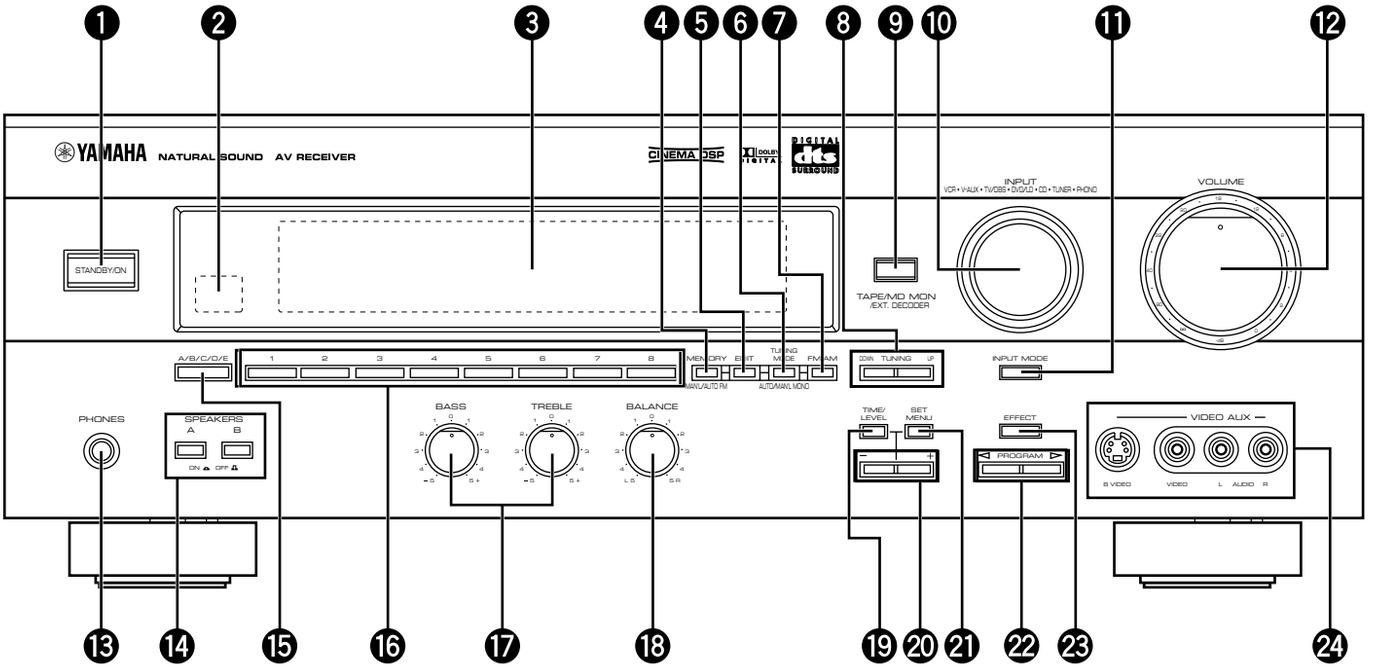
Digital sound fields are created on the presence side and the independent left and right surround sides of the Dolby Digital-decoded or DTS-decoded sound field, respectively. They create a wide acoustic environment and strong surround effect in the room without losing high-channel separation. With the wide dynamic range of Dolby Digital or DTS sound, this sound field combination lets you feel as if you were watching a movie in the newest Dolby Digital theater or DTS-installed theater. This is the most ideal home theater sound at the present time.

Refer to pages 36 to 37 for the DSP program.



CONTROLS AND THEIR FUNCTIONS

FRONT PANEL



Refer to pages 43 to 48 for the remote control.

❶ STANDBY/ON

Press this switch to turn on the power of this unit. Press it again to set this unit in the standby mode.

> Standby mode
> In this state, this unit consumes a very small quantity of power to receive infrared-signals from the remote control.

❷ Remote control sensor

This receives signals from the remote control.

❸ Display

This shows various information. (Refer to page 12 for details.)

❹ MEMORY (MAN'L/AUTO FM)

Press this button to store the broadcasting stations.
When this button is pressed and held for more than three seconds, automatic preset tuning begins.

❺ EDIT

This button is used to exchange the assigment of two preset stations with each other.

❻ TUNING MODE (AUTO/MAN'L MONO)

Press this button to switch the tuning mode to automatic or manual. To select the automatic tuning mode, press this button so that the "AUTO TUNING" indicator lights up on the display. To select the manual tuning mode, press this button so that the "AUTO TUNING" indicator goes off.

❼ FM/AM

Press this button to switch the reception band between FM and AM.

❽ TUNING UP/DOWN

This button is used for tuning. Press the UP side to tune in to higher frequencies, and press the DOWN side to tune in to lower frequencies.

❾ TAPE/MD MON / EXT. DECODER

Press this button to play a tape or an MD. The "TAPE/MD MON" indicator lights up on the display.
When you press the button next, the "TAPE/MD MON" indicator goes off, "EXT. DECDR" appears on the display and you can play the signal connected to the **EXTERNAL DECODER INPUT** terminals.

❿ INPUT

Turn this selector to select the input source (VCR, VIDEO AUX, TV/DBS, DVD/LD, CD, TUNER, PHONO) that you want to listen to or watch.
The name of the selected input source appears on the display.

⓫ INPUT MODE
This button switches between the DVD/LD and TV/DBS input signal modes.

⓬ VOLUME
This control is used to raise or lower the volume level.

⓭ PHONES jack
When you use headphones, connect the headphones to the **PHONES** jack. You can listen to the sound to be output from the main speakers through the headphones.
When using headphones only, set both **SPEAKERS A** and **B** to the OFF position and switch off the digital sound field processor (so that no DSP program name appears on the display) by pressing **EFFECT**.

⓮ SPEAKERS
Set **A** or **B** (or both **A** and **B**) to the ON position for the main speaker system (connected to this unit) that you want to use. Set the button(s) for the main speaker system you don't want to use to the OFF position.

⓯ A/B/C/D/E
Press this button to select one of a group (A to E) of preset stations.

⓰ Preset station number selector
Each of these buttons selects a preset station number (1 to 8).

⓱ Tone controls
These controls are only effective for the sound from the main speakers.
BASS
Use this control to increase or decrease the low-frequency response. The "0" position produces a flat response.
TREBLE
Use this control to increase or decrease the high-frequency response. The "0" position produces a flat response.

⓲ BALANCE
This control is only effective for the sound from the main speakers.
Turn the control to adjust the balance of the output volume to the left and right speakers to compensate for sound imbalance caused by the speaker location or listening room conditions.

⓳ TIME/LEVEL
Press this button to select the item in the TIME/LEVEL mode.

⓴ +/–
These buttons are used to adjust the settings of the SET MENU mode and the TIME/LEVEL mode. In the TIME/LEVEL mode, press **+** to increase the delay time or speaker output level. Press **–** to decrease the delay time or speaker output level.

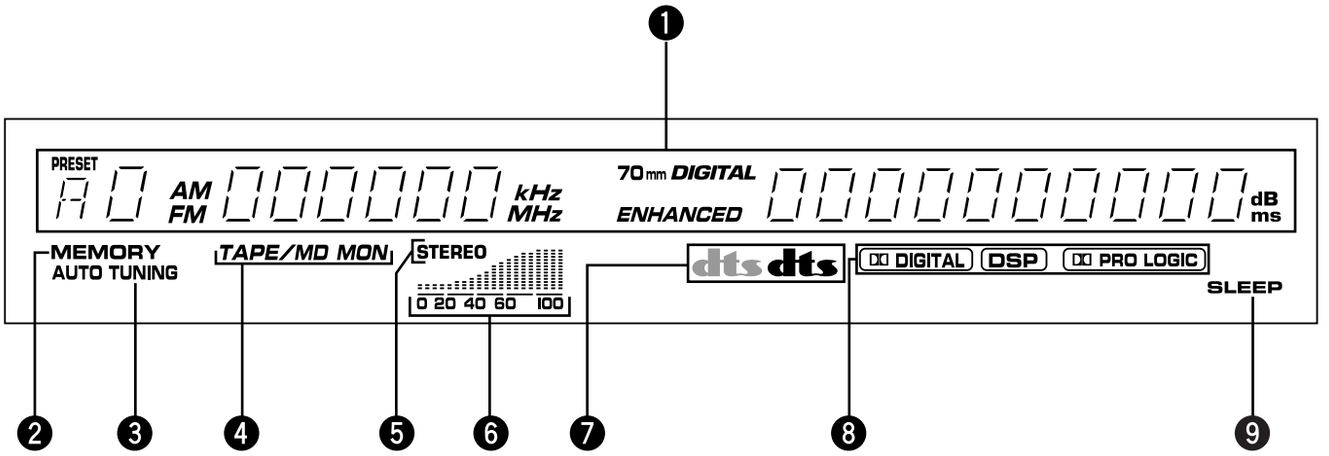
㉑ SET MENU
Press this button to select functions in the SET MENU mode.

㉒ PROGRAM selector
Press ◅ or ▻ to select a DSP program.
The name of the selected program appears on the display.

㉓ EFFECT
Press this button once to switch the effect speakers (center and rear) on or off. If you turn off the effect by using **EFFECT**, all Dolby Digital and DTS audio signals are directed to the main left and right channels. In that case, the left and right channel signal levels may not match.

㉔ VIDEO AUX terminals
Connect an auxiliary video or audio input source such as a camcorder to these terminals. If the connected video unit has an S video output terminal, connect it to the **S VIDEO** terminal to obtain a high-resolution picture. The source connected to these terminals can be selected by **INPUT**.

DISPLAY PANEL



❶ Multi-information display
This displays various information, for example the station frequency, preset station number and name of the selected input source.

❷ MEMORY indicator
When **MEMORY** is pressed, this indicator flashes for about five seconds. During this period, the displayed station can be stored in the memory.

❸ AUTO TUNING indicator
This lights up when the unit is in the automatic tuning mode.

❹ TAPE/MD MON indicator
This lights up when the tape deck (or MD recorder, etc.) is selected as the input source by pressing **TAPE/MD MON / EXT. DECODER** on the front panel or **TAPE/MD** on the remote control.

❺ STEREO indicator
This lights up when an FM stereo broadcast with sufficient signal strength is being received.

❻ Signal-level indicator
This indicates the signal level of the station being received.
If multipath interference is detected, the indication decreases.

❼ dts indicators
Either "dts" indicator lights up when the built-in DTS decoder is turned on.
The red "dts" indicator lights up when playing a CD or LD encoded with DTS.
The orange "dts" indicator lights up when playing a DVD encoded with DTS.
* An orange "dts" indicator may light up when playing a CD or LD encoded with DTS after playing a video-CD or DVD on a DVD/LD combi-player.

❽ DIGITAL, DSP and PRO LOGIC indicators
"DIGITAL" lights up when the built-in Dolby Digital decoder is on and the signals of the selected source encoded with Dolby Digital are not in 2-channel. "DSP" lights up when the built-in digital sound field processor is on, and "PRO LOGIC" lights up when the built-in Dolby Pro Logic decoder is on. Depending on the selected DSP program, both "DIGITAL" and "DSP", or both "DSP" and "PRO LOGIC" will light up.

❾ SLEEP indicator
This lights up while the built-in SLEEP timer is functioning.

SPEAKER SETUP

SPEAKERS TO BE USED

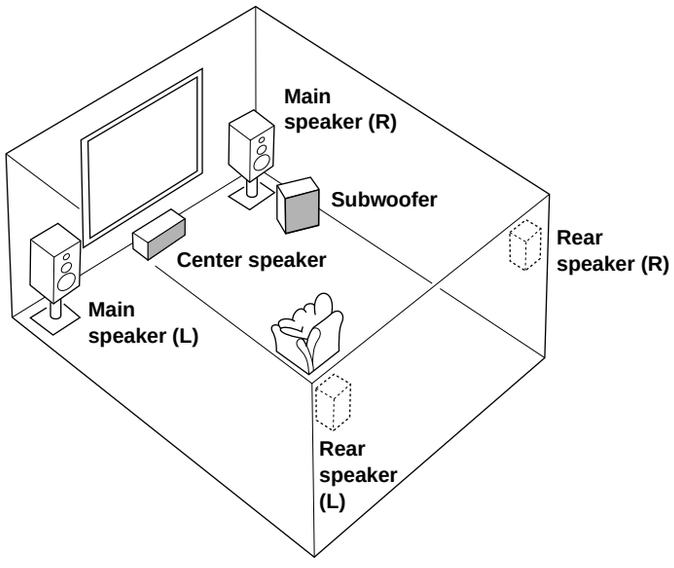
This unit is designed to provide the best sound-field quality with a 5-speaker configuration, using main speakers, rear speakers and a center speaker.
The main speakers are used for the main source sound plus the effect sounds. They will probably be the speakers from your present stereo system. The rear speakers are used for the effect and surround sounds, and the center speaker is for the center sounds (dialog, vocals, etc.). If for some reason it is not practical to use a center speaker, you can do without it. Best results, however, are obtained with the full system.

The main speakers should be high-performance models and have enough power-handling capacity to accept the maximum output of your audio system.
The other speakers do not have to be equal to the main speakers. For precise sound localization, however, it is ideal to use high-performance models that can reproduce sounds over the full range for the center speaker and the rear speakers.

Use of a subwoofer expands your sound field
It is also possible to further expand your system with the addition of a subwoofer. The use of a subwoofer is effective not only for reinforcing bass frequencies from any or all channels, but also for reproducing the LFE (low frequency effect) sound with high fidelity when playing back a source that is Dolby Digital or DTS-decoded. The YAMAHA Active Servo Processing Subwoofer System is ideal for natural and lively bass reproduction.

SPEAKER PLACEMENT

Refer to the following diagram when you place the speakers.



Main: The position of your present stereo speaker system.

Rear: Behind your listening position, facing slightly inward. Nearly 1.8 m (approx. 6 feet) up from the floor.

Center: Precisely between the main speakers. (To avoid interference with TV sets, use a magnetically shielded speaker.)

Subwoofer: The position of the subwoofer is not as critical, because low bass tones are not highly directional.

Note: If the center speaker (principally, it reproduces dialog, vocals, etc.) is not used, the sound will be output from the left and right main speakers. In that case, be sure to select the NONE position for “CNTR” in the SET MENU mode. (See page 21 for details.)

CONNECTIONS

Never plug in this unit and other components until all connections have been completed.

CONNECTIONS WITH OTHER COMPONENTS

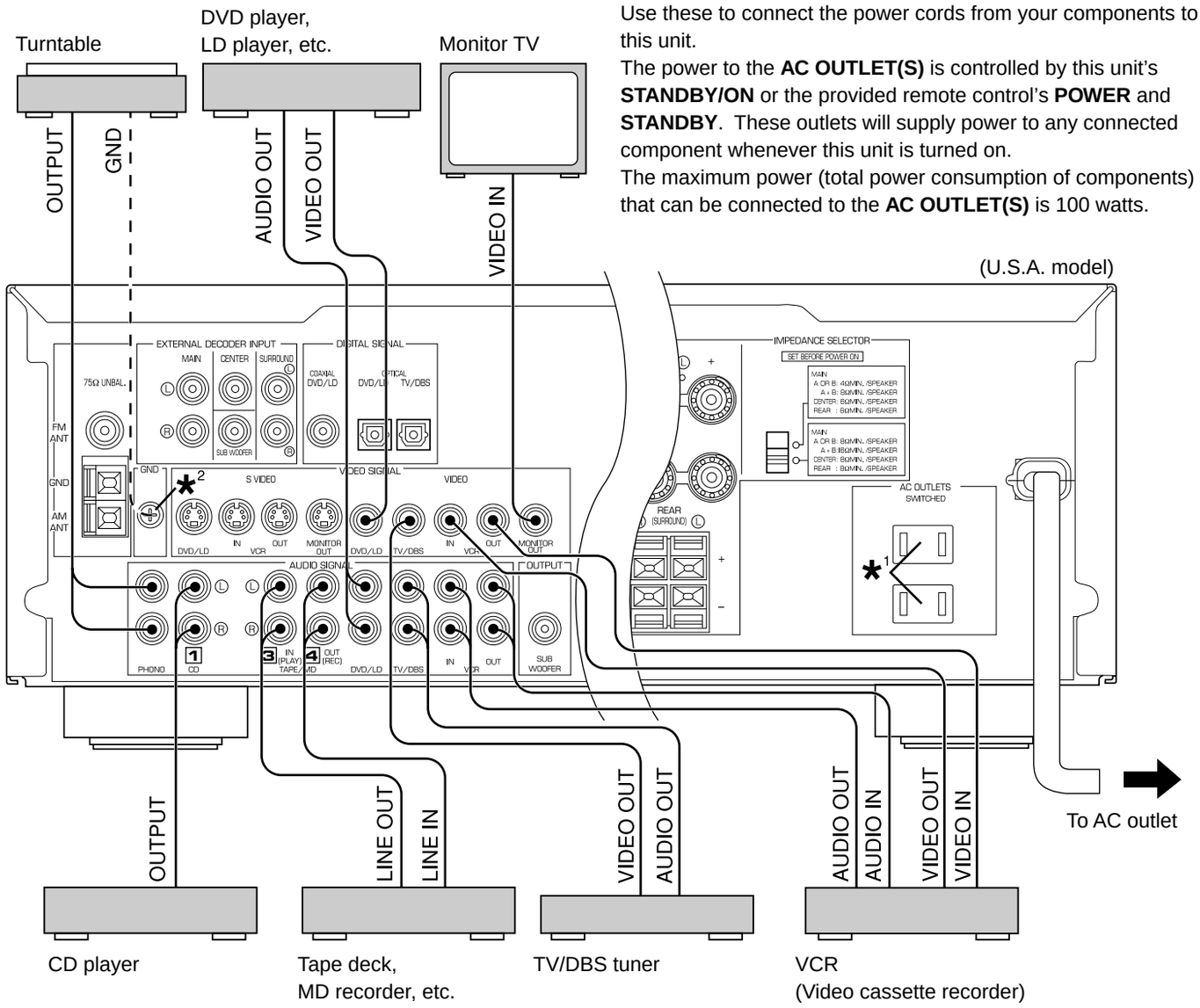
Use RCA-type pin plug cables for connecting audio/video components with the exception described later.
When making connections between this unit and other components, be sure all connections are made correctly, that is to say **L** (left) to **L**, **R** (right) to **R**, "**+**" to "**+**" and "**–**" to "**–**". Also, refer to the owner's manual for each component to be connected to this unit.

* If you have YAMAHA components numbered as 1, 3, 4, etc. on the rear panel, connections can be made easily by making sure to connect the output (or input) terminals of each component to the same-numbered terminals of this unit.

✱[1] AC OUTLET(S) (SWITCHED)

U.S.A., Canada and China models ..... 2 OUTLETS
Australia model ..... 1 OUTLET

Use these to connect the power cords from your components to this unit.
The power to the **AC OUTLET(S)** is controlled by this unit's **STANDBY/ON** or the provided remote control's **POWER** and **STANDBY**. These outlets will supply power to any connected component whenever this unit is turned on.
The maximum power (total power consumption of components) that can be connected to the **AC OUTLET(S)** is 100 watts.



✱[2] GND terminal (for turntable use)

Connecting the ground (earth) wire of the turntable to the **GND** terminal will normally minimize hum, but in some cases, better results may be obtained with the ground wire disconnected.

CONNECTING TO DIGITAL (COAXIAL AND/OR OPTICAL) TERMINALS

If your DVD (LD) player, TV/DBS tuner, etc. are equipped with coaxial or optical digital audio signal output terminals, they can be connected to this unit's **COAXIAL** and/or **OPTICAL** digital signal input terminals.

Digital audio signals are transmitted with less loss than analog audio signals. In addition, digital audio signal connections are necessary, especially for an LD player or a DVD player, to send signals encoded with Dolby Digital or DTS to this unit.

To make a connection between optical digital audio signal terminals, remove the cover from each terminal, and then connect them by using a commercially available optical fiber cable that conforms to EIAJ standards. Other cables might not function correctly.

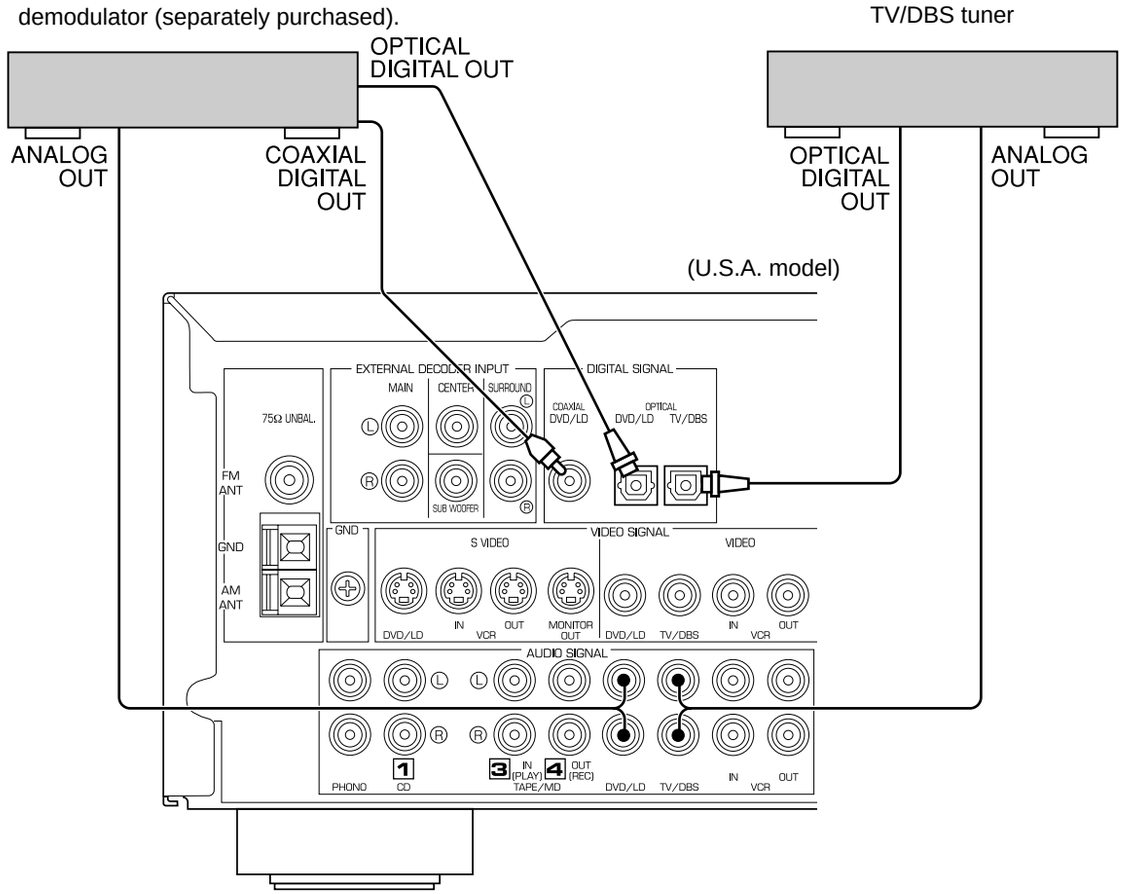
Even if you connect an audio/video unit to the **COAXIAL** (or **OPTICAL**) terminal of this unit, you must keep the unit connected with the same-named analog audio signal terminals of this unit, because a digital signal cannot be recorded by a tape deck, MD recorder or VCR connected to this unit. You can easily switch the selection of input signals between "digital" and "analog." (See page 28 for details.)

Notes

- When connecting an audio/video unit to both the digital and analog terminals of this unit, make sure to connect between both terminals of the same name.
- Be sure to attach the covers when the **OPTICAL** terminals are not being used in order to protect them from dust.
- The input signal from the DVD/LD input terminals is selected in the following order of priority with the input mode set to the AUTO position:
  1 **COAXIAL** terminal
  2 **OPTICAL** terminal
  3 Analog terminal
- If the DIGITAL OUT data of the player has been processed in any way, you may not be able to perform DTS playback even if you make a digital connection between this unit and the player.
- All digital audio signal input terminals are applicable to sampling frequencies of 32 kHz, 44.1 kHz and 48 kHz.

No sound will be generated when connecting your LD player's Dolby Digital RF signal output terminal directly to this unit's **COAXIAL DVD/LD** digital signal input terminal.

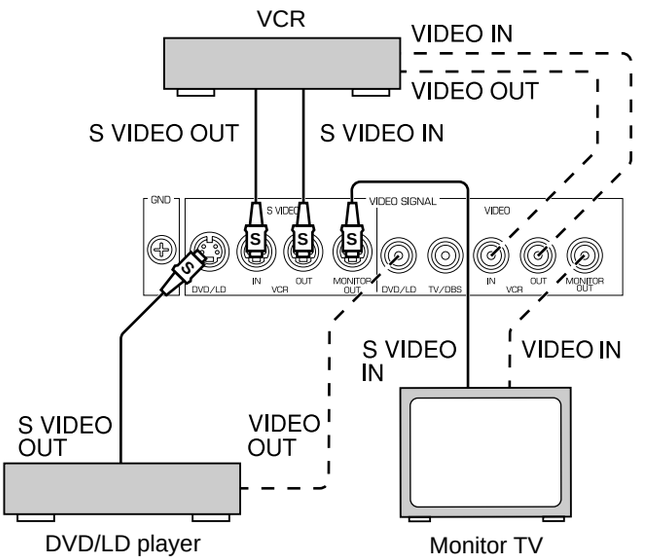
DVD or LD player*
* If your LD player has a Dolby Digital RF signal output terminal, be sure to use the RF demodulator (separately purchased).



CONNECTING TO S VIDEO TERMINALS

If you have a VCR and a monitor equipped with “S” (high-resolution) video terminals, those terminals can be connected to this unit’s **S VIDEO** terminals. Connect the VCR’s “S” video input and output terminals to this unit’s **S VIDEO VCR OUT** and **IN** terminals, respectively, and connect the monitor’s “S” video input terminal to this unit’s **S VIDEO MONITOR OUT** terminal. Otherwise, connect the VCR’s composite video terminals to this unit’s composite video terminals, and connect the monitor’s composite video input terminal to this unit’s composite **MONITOR OUT** terminal.
In addition, if you have a DVD or LD player equipped with an “S” video terminal, connect the DVD/LD player’s “S” video output terminal to this unit’s **S VIDEO DVD/LD** terminal.

Note
If video signals are sent to both S VIDEO input and composite input terminals, the signals will be sent to their respective output terminals.

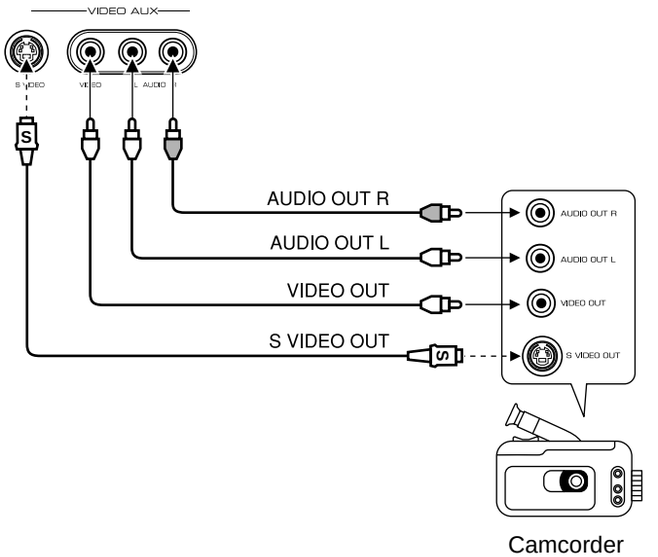


S VIDEO cable

S VIDEO terminals
This unit provides you with **S VIDEO** terminals in addition to standard VIDEO terminals.
S VIDEO terminals transmit video signals separated into luminance (Y) signals and color (C) signals. In comparison with **S VIDEO** terminals, standard VIDEO terminals transmit “composite” video signals.

CONNECTING TO VIDEO AUX TERMINALS (ON THE FRONT PANEL)

These terminals are used to connect any video input source such as a camcorder to this unit.

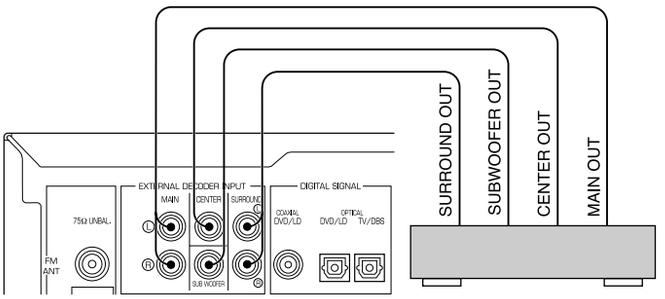


CONNECTING TO AN EXTERNAL DECODER

This unit is equipped with additional 6-channel audio signal input terminals for inputting signals from an external decoder to this unit.
Connect the 6-channel audio signal output terminals of the decoder to the **EXTERNAL DECODER INPUT** terminals of this unit.

Notes

- When signals input to these terminals are selected, the digital sound field processor cannot be used.
- The settings of “CNTR”, “REAR”, “MAIN” and “BASS” in the SET MENU mode have no effect on the signals input to these terminals. The setting of “M.LVL” is effective. (Refer to page 21 for details.)
- Adjustment of the output level of the center speakers, rear speakers and subwoofer is effective when the signals input to these terminals are selected as the input source. (Refer to page 39 for details.)



(U.S.A. model)

External decoder with 6-channel discrete outputs

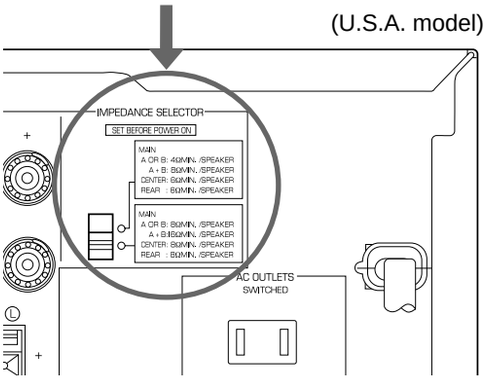
IMPEDANCE SELECTOR SWITCH

WARNING
Do not change the **IMPEDANCE SELECTOR** switch setting while the power to this unit is on, otherwise this unit may be damaged.

If this unit fails to turn on when the STANDBY/ON switch is pressed, the **IMPEDANCE SELECTOR** switch may not be fully set to either end. If so, set the switch to either end fully when this unit is in the standby mode.

IMPEDANCE SELECTOR

(U.S.A. model)



Select the position whose requirements your speaker system meets.

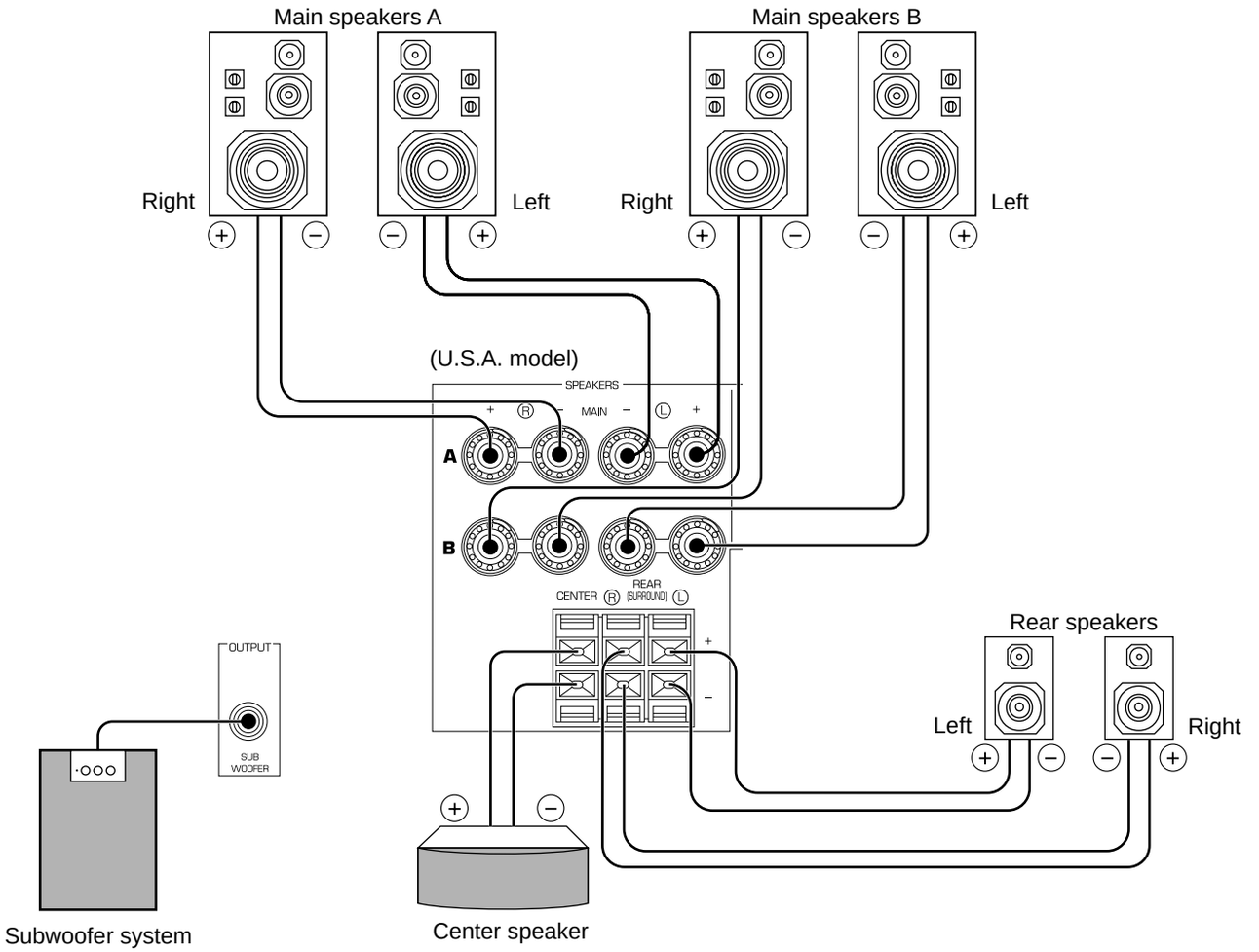
(Upper position)

Main: If you use one pair of main speakers, the impedance of each speaker must be 4 Ω or higher.
If you use two pairs of main speakers, the impedance of each speaker must be 8 Ω or higher.
Center: The impedance of the speaker must be 6 Ω or higher.
Rear: The impedance of each speaker must be 6 Ω or higher.

(Lower position)

Main: If you use one pair of main speakers, the impedance of each speaker must be 8 Ω or higher.
If you use two pairs of main speakers, the impedance of each speaker must be 16 Ω or higher.
<Canada model only>
The impedance of each speaker must be 8 Ω or higher.
Center: The impedance of the speaker must be 8 Ω or higher.
Rear: The impedance of each speaker must be 8 Ω or higher.

CONNECTING SPEAKERS



Note
Use speakers with the specified impedance shown on the rear panel of this unit.

Main speaker connections

One or two speaker systems can be connected to this unit. If you use only one speaker system, connect it to either of the **SPEAKERS A** or **B** terminals.

Rear speaker connections

A rear speaker system can be connected to this unit. Place them to the rear of your listening position.

Center speaker connection

A center speaker can be connected to this unit. Place it on or under the TV.

Subwoofer connection

You may wish to add a subwoofer to reinforce low frequencies or to output low bass sound from the subwoofer channel.
If you have a subwoofer with built-in amplifier, including the YAMAHA Active Servo Processing Subwoofer System, connect the **SUBWOOFER OUTPUT** terminal of this unit to the input terminal of the subwoofer system.

How to connect

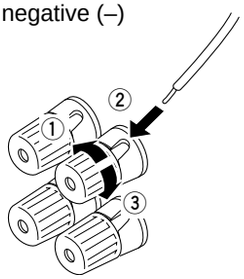
Connect the **SPEAKERS** terminals to your speakers with wire of the proper gauge, cut as short as possible. If the connections are faulty, no sound will be heard from the speakers. Make sure that the polarity of the speaker wires is correct, that is the + and – markings are observed. If these wires are reversed, the sound will be unnatural and lack bass.

Caution

Do not let the bare speaker wires touch each other and do not let them touch any metal part of this unit. This could damage the unit and/or speakers.

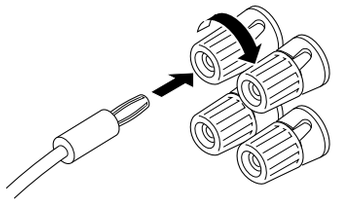
Connecting to the MAIN SPEAKERS terminals

Red: positive (+)
Black: negative (–)



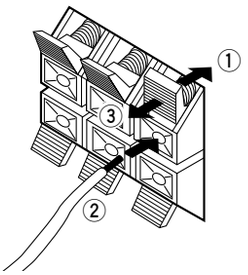
① Unscrew the knob.
② Remove approx. 5 mm (1/4”) of insulation from each of the speaker wires and insert one bare wire into each terminal.
③ Tighten the knob to secure the wire.

Banana plug connections are also possible. Simply insert the banana plug connector into the corresponding terminal.



Connecting to the REAR and CENTER SPEAKERS terminals

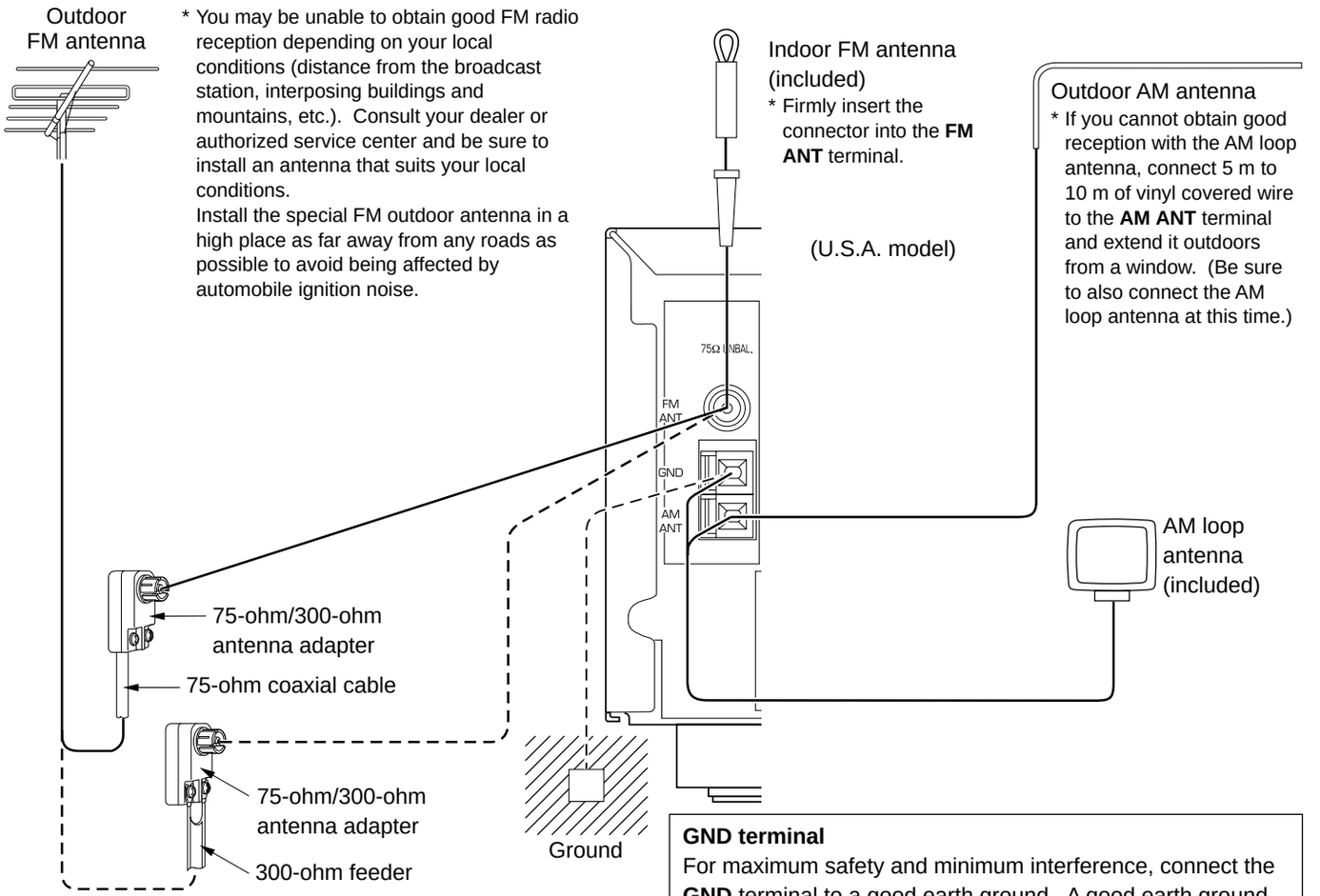
Red: positive (+)
Black: negative (–)



① Press the tab.
② Remove approx. 5 mm (1/4”) of insulation from each of the speaker wires and insert one bare wire into each terminal.
③ Release the tab to secure the wire.

ANTENNA CONNECTIONS

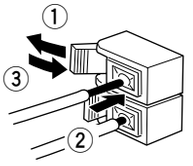
Each antenna should be correctly connected to the designated terminals, referring to the following diagram.
Both AM and FM indoor antennas are included with this unit. In general, these antennas will probably provide sufficient signal strength. Nevertheless, a properly installed outdoor antenna will give clearer reception than an indoor one. If you experience poor reception quality, an outdoor antenna may result in improvement.



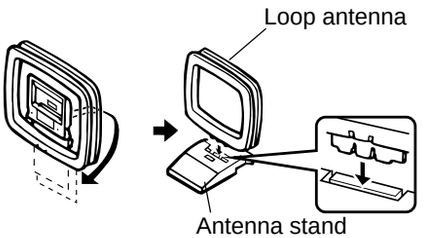
GND terminal
For maximum safety and minimum interference, connect the **GND** terminal to a good earth ground. A good earth ground is a metal stake driven into moist earth.

Connecting the AM loop antenna

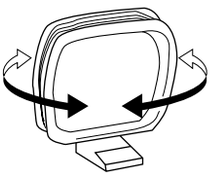
1 ① Press the tab and unlock the terminal hole.
② Connect the AM loop antenna lead wires to the **AM ANT** and **GND** terminals.
③ Return the tab to its original position to lock the lead wires. Lightly pull the lead wires to confirm a good connection.



2 Attach the loop antenna to the antenna stand.



3 Orient the AM loop antenna so that the best reception is obtained.



- The AM loop antenna should be placed away from this unit. The antenna may be hung on a wall.
- The AM loop antenna should always be connected, even if an outdoor AM antenna is connected to this unit.

ADJUSTMENTS BEFORE USING THIS UNIT

SELECTING THE OUTPUT MODES

This unit provides you with the following five functions to determine the method of distributing output signals to speakers suitable for your audio system. When speaker connections have all been completed, select the proper setting for each function to make the best use of your speaker system. (See “ADJUSTMENTS IN THE ‘SET MENU’ MODE” on page 41.)

1. CNTR (CENTER SPEAKER) 2. REAR (REAR SPEAKERS) 3. MAIN (MAIN SPEAKERS)
4. BASS (LFE/BASS OUT) 5. M.LVL (MAIN LEVEL)

DESCRIPTION OF EACH FUNCTION

CNTR (CENTER SPEAKER)

Choices: LARGE/SMALL/NONE
Preset position: LARGE

LARGE: Select this position when your center speaker is approximately the same size as the main speakers.

SMALL: Select this position when you use a center speaker that is smaller than the main speakers.
In this position, low bass signals (below 90 Hz) on the center channel are output from the main speakers (or the **SUBWOOFER OUTPUT** terminal if the SMALL position is selected for “MAIN” and the SW position is selected for “BASS”).

NONE: Select this position when you do not have a center speaker (four speaker system). The center channel sound will be output from the left and right main speakers.

REAR (REAR SPEAKERS)

Choices: LARGE/SMALL
Preset position: LARGE

LARGE: Select this position if your rear speakers have high ability for bass reproduction, or if a subwoofer is connected in parallel to the rear speaker.
In this position, full-range signals are output from the rear speakers.

SMALL: Select this position if your rear speakers do not have high ability for bass reproduction.
In this position, low bass signals (below 90 Hz) on the rear channels are output from the **SUBWOOFER OUTPUT** terminal (or the main speakers if the MAIN position is selected for “BASS”).

MAIN (MAIN SPEAKERS)

Choices: LARGE/SMALL
Preset position: LARGE

LARGE: Select this position if your main speakers have high ability for bass reproduction.
In this position, full-range signals present on the main channels are output from the main speakers.

SMALL: Select this position if your main speakers do not have high ability for bass reproduction. However, if your system does not include a subwoofer, do not select this position.
In this position, low bass signals (below 90 Hz) on the main channels are output from the **SUBWOOFER OUTPUT** terminal if the SW or BOTH position is selected for “BASS”.

BASS (LFE/BASS OUT)

Choices: SW/MAIN/BOTH
Preset position: SW

MAIN: Select this position if your system does not include a subwoofer.
In this position, full-range signals present on the main channels, signals from the LFE channel and other low bass signals that are distributed from other channels are output from the main speakers.

SW/BOTH:
Select either the SW or BOTH position if your system includes a subwoofer.
In either position, signals on the LFE channel and other low bass signals that are distributed from other channels are output from the **SUBWOOFER OUTPUT** terminal.
When the LARGE position is selected for “MAIN”, in the SW position, no signal is distributed from the main channels to the **SUBWOOFER OUTPUT** terminal; however, in the BOTH position, low bass signals from the main channels are output to both the main speakers and the **SUBWOOFER OUTPUT** terminal.

M.LVL (MAIN LEVEL)

Choices: NRML (NORMAL)/–10 dB
Preset position: NRML (NORMAL)

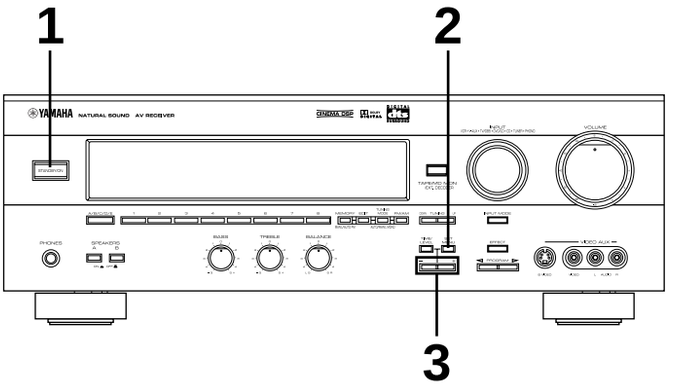
NRML (NORMAL):
Normally select this position.

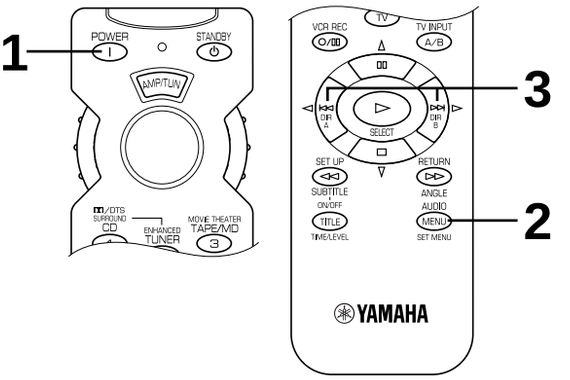
–10 dB: Select this position if the sound output from the main speakers is too loud and cannot be balanced with the sound output from the center and rear speakers.
In this position, the sound output from the main speakers is attenuated.

Note
The settings of “CNTR”, “REAR”, “MAIN” and “BASS” have no effect on the signals input to the **EXTERNAL DECODER INPUT** terminals on the rear of this unit.

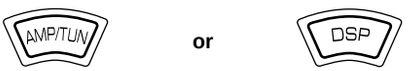
ADJUSTMENT METHOD

Adjustments should be made while watching the information on this unit's display.



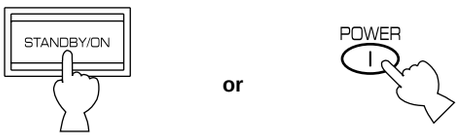


When adjusting with the remote control, set the SELECTOR DIAL to the AMP/TUN or DSP position on the remote control.



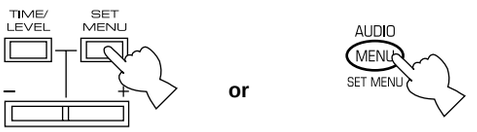
1 Turn the power on.

Front panel **Remote control**

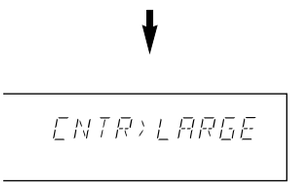


2 Press **SET MENU** once or more to select the function "CNTR" on the display.

Front panel **Remote control**

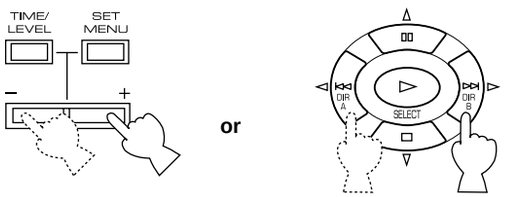


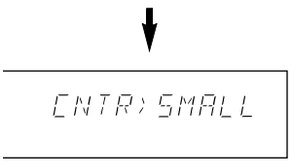
* After pressing **SET MENU** once on the remote control, you can also select the function by pressing ▽. (Pressing △ goes back one selection.)



3 Press **+** or **–** once or more to select the setting you want.

Front panel **Remote control**



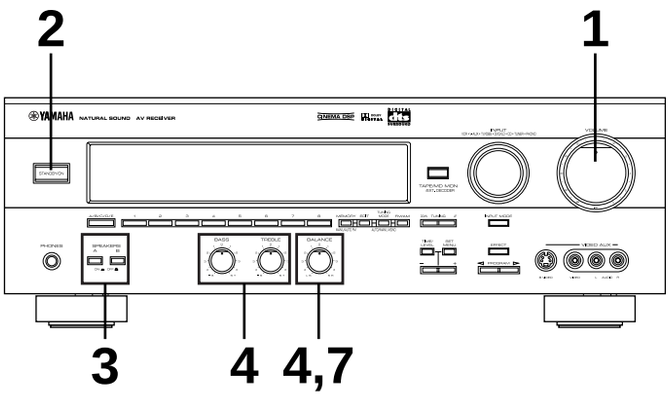


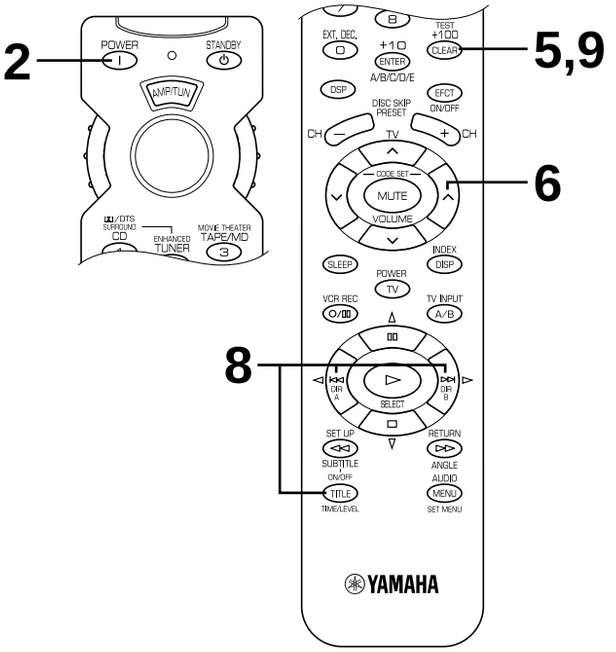
4 Repeat steps 2 and 3 to change the settings for "REAR", "MAIN", "BASS" and/or "M.LVL" in the same way.

SPEAKER BALANCE ADJUSTMENT

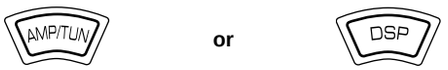
This procedure lets you adjust the sound output level balance between the main, center and rear speakers by using the built-in test tone generator. When this adjustment is performed, the sound output level heard at the listening position will be the same from each speaker. This is important for the best performance of the digital sound field processor, the Dolby Digital decoder, the Dolby Pro Logic decoder and the DTS decoder.

The adjustment of each speaker output level should be done at your listening position with the remote control.
After completing the adjustment of the output level for each speaker, use VOLUME (∧ ∨) on the remote control at your listening position to check if the adjustments are satisfactory.



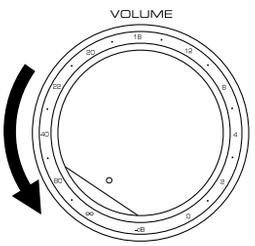


Set the SELECTOR DIAL to the AMP/TUN or DSP position on the remote control.



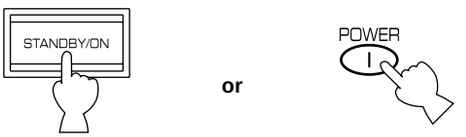
1 Set **VOLUME** to the "∞" position.

Front panel



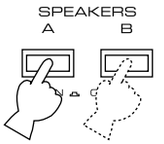
2 Turn the power on.

Front panel **Remote control**



3 Select the main speakers to be used.

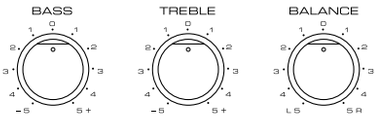
Front panel



* If you use two main speaker systems, press both **A** and **B**.

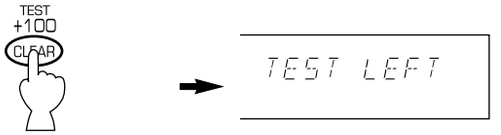
4 Set **BASS**, **TREBLE** and **BALANCE** to the “0” position.

Front panel



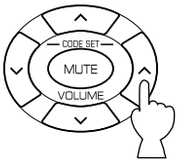
5 Press **TEST** so that “TEST LEFT” appears on the display.

Remote control

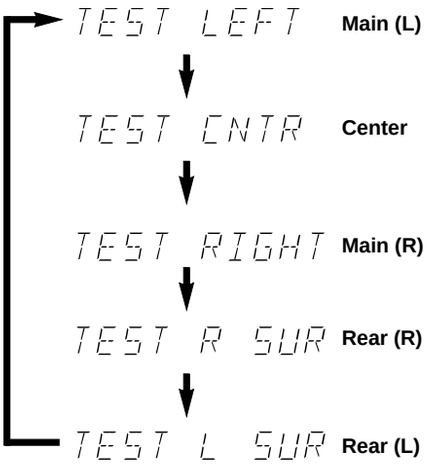


6 Turn up the volume.

Remote control



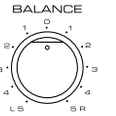
You will hear a test tone (like pink noise) from each speaker for about two seconds in following order: left main speaker, center speaker, right main speaker, right rear speaker and left rear speaker. The display changes as shown below.



* If the function “CNTR” in the SET MENU mode is set to the NONE position, you will hear the center channel test tone from the left and right main speakers.

7 Adjust **BALANCE** so that the sound output level of the left main speaker and the right main speaker is the same.

Front panel



8 Adjust the sound output levels of the center speaker and the rear speakers so that they become almost the same as that of the main speakers.

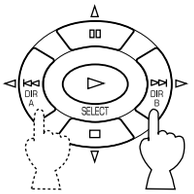
Press **TIME/LEVEL** once or more to select the speaker to be adjusted so that “CENTER”, “R SUR.” or “L SUR.” appears on the display.

Remote control

* You cannot adjust the delay time while the test tone is sounding even if “DELAY” appears on the display after pressing **TIME/LEVEL** once or more.

Adjust the level.
* Pressing ▻ raises and ◅ lowers the level.
* While adjusting, the test tone is heard from the selected speaker.

Remote control



9 When the adjustment is finished, press **TEST** again to stop the test tone.

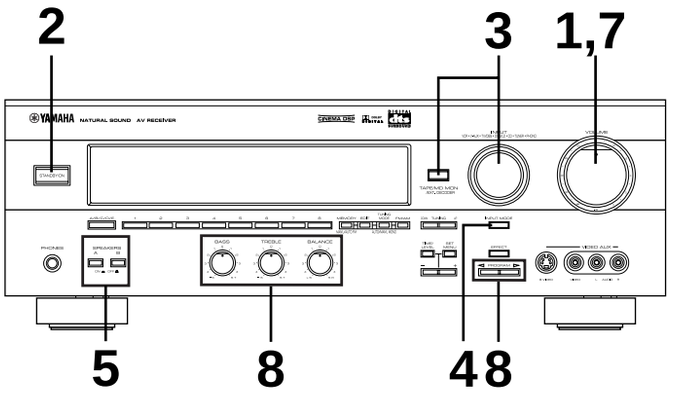
Remote control

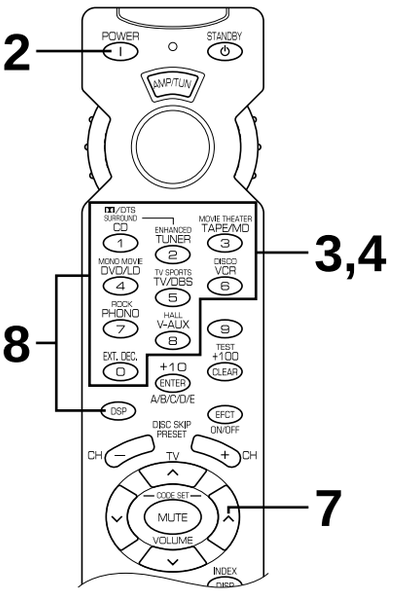
Notes

- Once you have completed these adjustments, you can only adjust the overall sound level of your audio system by using **VOLUME** (or **VOLUME** (∧ ∨) on the remote control).
- If you use external power amplifiers, you may also use their volume controls to achieve the proper balance.
- If the function “CNTR” in the SET MENU mode is set to the NONE position, the sound output level of the center speaker cannot be adjusted in step 8. The center sound is automatically output from the left and right main speakers.
- If there is insufficient sound output from the center and rear speakers, you may decrease the main speaker output level by setting “M.LVL” to “–10 dB”.

BASIC OPERATION

TO PLAY A SOURCE



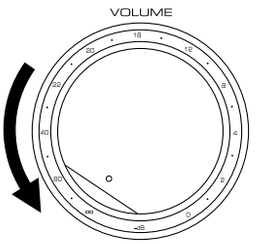


When using the remote control

- Set the SELECTOR DIAL to the AMP/TUN position on the remote control.
- To operate the CD player, DVD/LD player, tape deck, MD recorder, or other components with this remote control, set the SELECTOR DIAL to the component to be used. (See "SETUP CODES" on page 49.)

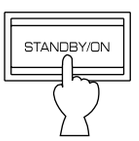
1 Set **VOLUME** to the "∞" position.

Front panel



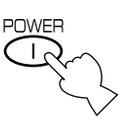
2 Turn the power on.

Front panel



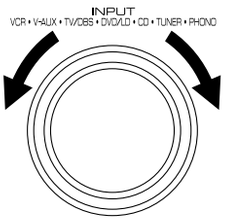
or

Remote control



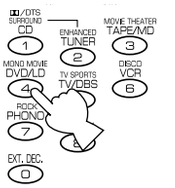
3 Select the desired input source by using **INPUT**. (Turn on the monitor TV for video sources.)

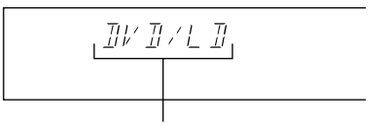
Front panel



or

Remote control



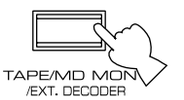


The name of the selected input source will appear on the display.

To play a tape or an MD

Press **TAPE/MD MON / EXT. DECODER** on the front panel or **TAPE/MD** on the remote control so that the "TAPE/MD MON" indicator lights up on the display.

Front panel



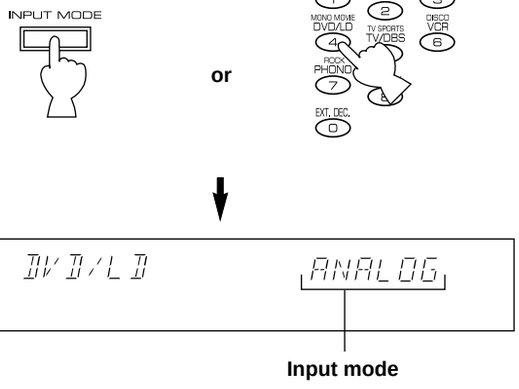
To use a decoder connected to the EXTERNAL DECODER INPUT terminals

Press **TAPE/MD MON / EXT. DECODER** once or more on the front panel or **EXT. DEC.** on the remote control so that "EXT. DECDR" appears on the display.

4 For a DVD/LD or TV/DBS source, the current input mode is also shown.

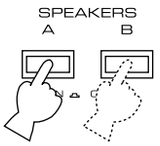
* To change the input mode for the DVD/LD or TV/DBS source, press **INPUT MODE** (or the button that you have pressed to select the input source in step 3 on the remote control) once or more until the desired input mode is shown on the display. (See page 28 for details on switching the input mode.)

Front panel **Remote control**



5 Select the main speakers to be used.

Front panel

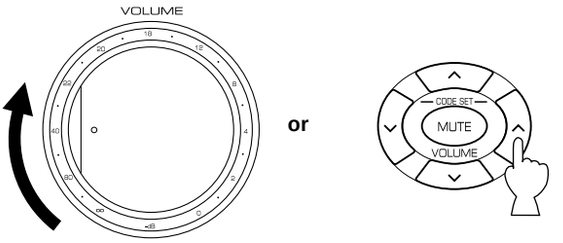


* If you use two main speaker systems, press both **A** and **B**.

6 Play the source. (See page 30 for detailed information on tuning.)

7 Adjust the volume to the desired output level.

Front panel **Remote control**



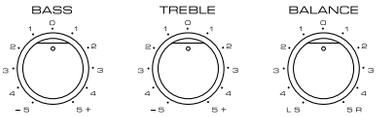
8 If desired, adjust **BASS**, **TREBLE**, **BALANCE**, etc. and use the digital sound field processor (see pages 36 to 37).

BASS: Turn this control clockwise to increase (or counterclockwise to decrease) the low-frequency response.

TREBLE: Turn this control clockwise to increase (or counterclockwise to decrease) the high-frequency response.

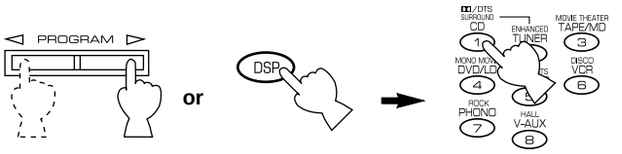
BALANCE: Adjust the balance of the output volume from the left and right speakers to compensate for any sound imbalance caused by the speaker location or listening room conditions.

Front panel



* These controls are only effective for the sound from the main speakers.

Front panel **Remote control**



When you have finished using this unit

Press **STANDBY/ON** on the front panel again or **STANDBY** on the remote control to set this unit in the standby mode.

Notes on using INPUT

- The audio source selected by **INPUT** will not be played if the "TAPE/MD MON" indicator lights up or if "EXT. DECDR" is displayed.
- If you select a video source by **INPUT** without canceling the selection of **TAPE/MD MON / EXT. DECODER** on the front panel (or **TAPE/MD** or **EXT. DEC.** on the remote control), the play back result will be a video image from the video source and the sound from the audio source selected by **TAPE/MD MON / EXT. DECODER** on the front panel (or **TAPE/MD** or **EXT. DEC.** on the remote control).
- If an audio source is selected by **INPUT** while watching a video source, the selected audio source will be played, but the video image will not be interrupted.
- When you select an input source by **INPUT**, the DSP program (or no DSP program) that was being used when the same input source was selected the last time will be automatically recalled.
- If "DATA ERR" appears on the display while playing a CD or LD encoded with DTS, stop playback and turn the player off and then on again.

Switching the input mode (for DVD/LD and TV/DBS)

This unit allows you to switch the input mode for sources that send two or more types of signal to this unit.
The following three input modes are provided.

AUTO
This mode is automatically selected when you turn on the power of this unit.
In this mode, the input signal is automatically selected in the following order of priority:

1. Digital signal encoded with Dolby Digital or DTS, or normal digital input signal (PCM)
2. Analog input signal (ANALOG)

* For a DVD/LD source, if digital signals are input from both the **OPTICAL** and **COAXIAL** terminals, the digital signal from the **COAXIAL** terminal is selected.

DTS
In this mode, only a digital input signal encoded with DTS is selected, even though other signals are input at the same time.

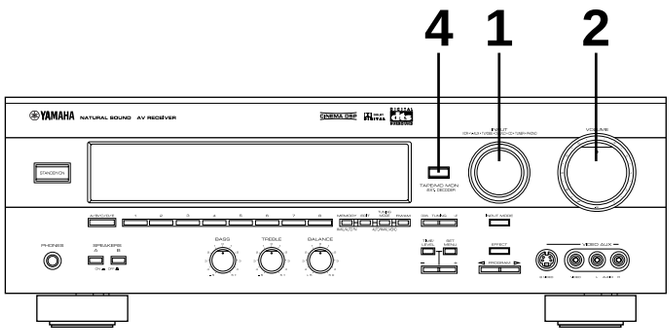
ANALOG
In this mode, only an analog input signal is selected, even though digital signals are input at the same time.
Select this mode when you want to use an analog input signal instead of digital input signals.

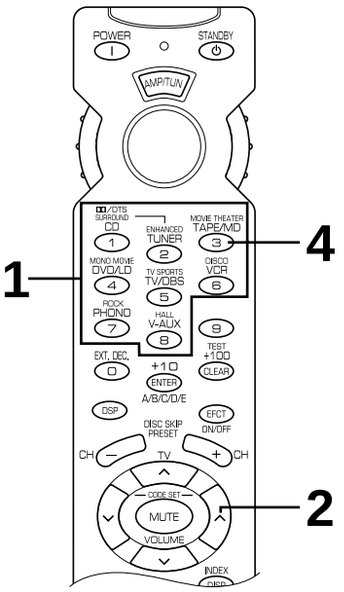
Notes on input mode selection

- The input mode for a TV/DBS source is selected with the function "INPUT" in the SET MENU mode. (See page 42 for details.)
- Set the input mode to AUTO to play a DVD/LD source encoded with Dolby Digital.
- Set the input mode to ANALOG to play a normal 2-channel source with a Dolby Surround program.
- The sound output may be interrupted in some LD and DVD players in the following situation:
  The input mode is set to AUTO. A search is made while playing the disc encoded with Dolby Digital or DTS, and then disc playing is restored. The sound output is interrupted for a moment because the digital input signal was selected again.
- The input mode cannot be changed for the PHONO, TUNER, TAPE/MD, CD, VCR and VIDEO AUX sources because only analog signals are used.
- The present input mode appears on the display when the input source is changed to DVD/LD or TV/DBS, or the input mode is changed.

Notes on playing a source encoded with DTS
If you play a CD or LD encoded with DTS while the AUTO mode is selected, there will be a short noise at first while the unit identifies the DTS signal and activates the DTS decoder. This is not a malfunction, and can be avoided by setting the input mode to DTS beforehand. In addition, If you continue to play a CD or LD encoded with DTS with the input mode setting left at AUTO, this unit automatically switches to the "DTS-decoding" mode to prevent noise from being generated during future operation. (The red "dts" indicator lights up on the display.)
No sound will be heard if a normal PCM CD or LD is played in this mode. (The red "dts" indicator will flash.) To play a normal disk, return the input mode from DTS to AUTO.

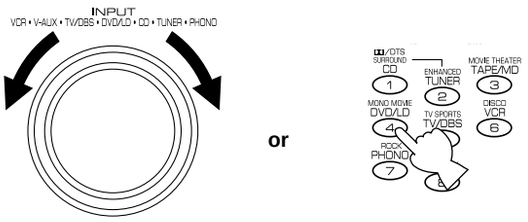
TO RECORD A SOURCE ON TAPE, MD OR VIDEO CASSETTE





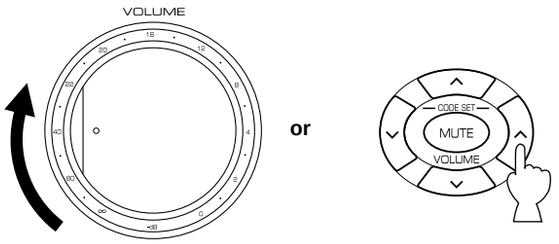
1 Select the source to be recorded.

Front panel **Remote control**



2 Play the source and then turn up the volume to confirm the input source. (See page 30 for detailed information on tuning.)

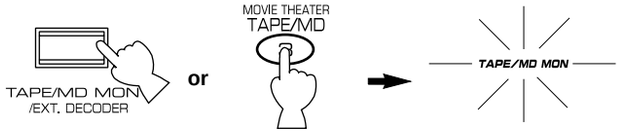
Front panel **Remote control**



3 Begin recording on the tape deck, MD recorder or VCR connected to this unit.

4 When a tape deck or MD recorder is being used for recording, you can monitor the sounds being recorded by pressing **TAPE/MD MON / EXT. DECODER** on the front panel or **TAPE/MD** on the remote control so that the “TAPE/MD MON” indicator lights up on the display.

Front panel **Remote control**



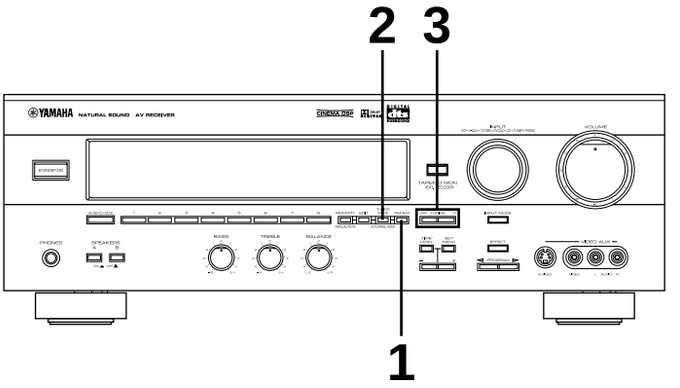
Notes

- The settings of DSP and **VOLUME**, **BASS**, **TREBLE** and **BALANCE** have no effect on the material being recorded.
- Composite video and S video signals pass independently through this unit’s video circuits. Therefore, when recording or dubbing video signals, if your video source unit is connected to provide only an S video (or only a composite video) signal, you can record only an S video (or only a composite video) signal on your VCR.
- A source that is connected to this unit only through the digital terminals cannot be recorded on a tape deck, MD recorder or VCR connected to this unit.
- A source of signals input to the **EXTERNAL DECODER INPUT** terminals of this unit cannot be recorded.
- Please check the copyright laws in your country to record from records, compact discs, radio, etc. Recording of copyright material may infringe copyright laws.

If you watch video software that uses scrambled or encoded signals to prevent it from being dubbed, there may be a case that the picture itself will be affected by those signals.

TUNING

Quick automatic-search tuning (AUTOMATIC TUNING) is effective when station signals are strong and there is no interference. However, if the signal from the station you want to select is weak, you must tune in to it manually (MANUAL TUNING).



AUTOMATIC TUNING

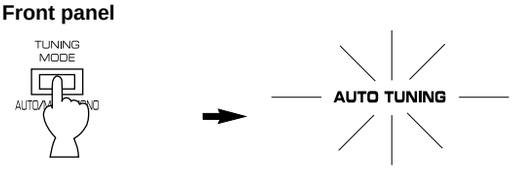
Set the SELECTOR DIAL to the AMP/TUN position on the remote control and select TUNER as the input source.

1 Select the reception band (FM or AM) and confirm it on the display.

Front panel

2 Press **TUNING MODE** so that the “AUTO TUNING” indicator lights up on the display.

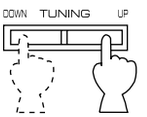
Front panel



Lights up

3 To tune in to a higher frequency, press the UP side of **TUNING** once.
To tune in to a lower frequency, press the DOWN side of **TUNING** once.

Front panel

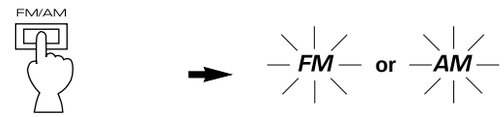


* If the station where the tuning search stops is not the desired one, press once more.
* If the tuning search does not stop at the desired station (because the signal from the station is weak), take the manual tuning procedure.

MANUAL TUNING

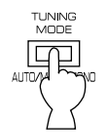
1 Select the reception band (FM or AM) and confirm it on the display.

Front panel



2 Press **TUNING MODE**.

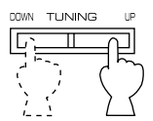
Front panel



Check that the “AUTO TUNING” indicator goes off.

3 Tune in manually to the desired station.

Front panel



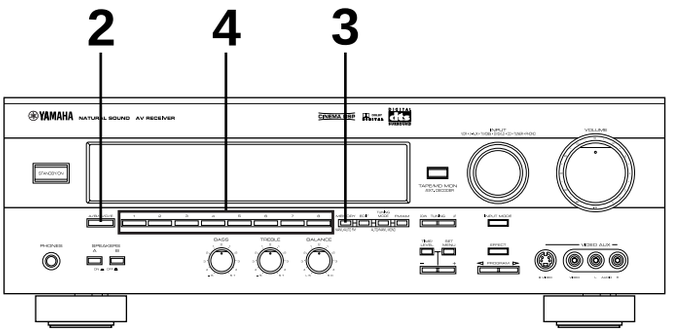
* To continue the tuning search, press and hold the button.

Notes

- If you tune in manually to an FM station, it will be automatically received in monaural mode to increase the signal quality.
- When tuned in to a station, the frequency of the received station is shown on the display.

MANUAL PRESET TUNING

This unit can store station frequencies to be selected by tuning. With this function, you can recall any desired station simply by selecting the preset station number with which it was stored. Up to 40 stations (8 stations x 5 groups) can be stored.

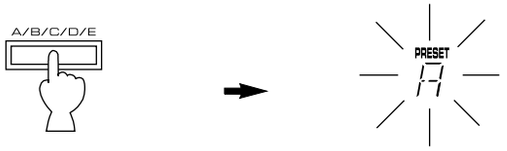


To store stations

1 Tune in to the desired station.
(See page 30 for the tuning procedure.)

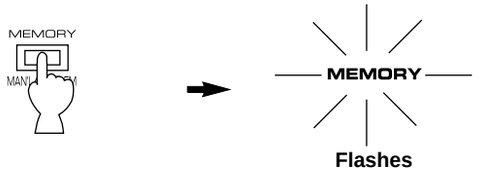
2 Press **A/B/C/D/E** once or more to select the desired group (A to E) of preset stations and confirm it on the display.

Front panel



3 Press **MEMORY** so that the “MEMORY” indicator flashes for about five seconds.

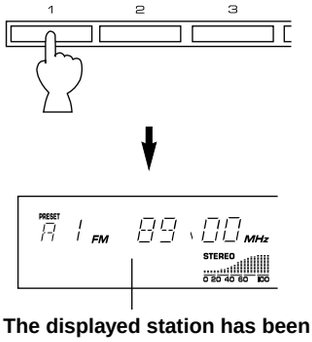
Front panel



Flashes

4 Select the preset station number with which you want to store the station before the “MEMORY” indicator goes off from the display.

Front panel



The displayed station has been stored as A1.

* In the same way, store other stations as A2, A3 ... A8.
* You can store more stations as preset station numbers in other groups in the same way by selecting another group in step 2.